MONITORING QUALITY OF CARE IN RESIDENTIAL CARE FOR THE ELDERLY

A STUDY OF THE LIMITATIONS AND POTENTIAL OF COMMUNITY CARE LICENSING'S CURRENT DATA SYSTEMS

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ABSTRACT

Purpose: This study assesses the administrative data compiled on Residential Care Facilities for the Elderly (RCFEs) by the State of California, and considers the feasibility of its adaptation into a comprehensive information system.

Design and Methods: Required State RCFE reporting forms were reviewed for potential data elements. Recording and reporting variation was evaluated using a stratified probability sample of 340 facilities licensed in Northern and Central California. Stratification was by facility size and State district office. Data collection included a five-year retrospective review of forms and documents in each facility's public file.

Results: Little of the information required from RCFEs is computerized. Most of it is maintained at the individual facility and not included in public files. Basic information, such as staff size, while included in the public file, is commonly either not available or not current. Resident characteristics and outcomes are not compiled, except indirectly in citations.

Implications: The information required from RCFEs, if appropriately compiled and maintained, would produce a comprehensive quality assurance system, and more effectively support consumer information and policy needs.

Keywords: quality of care, quality assurance, residential care, long-term care, assisted living

Reliable and timely information for monitoring the quality of long-term care has been available for nursing homes for many years in the form of such data systems as the *On-line Survey, Certification, and Reporting System* (OSCAR), and the *minimum data set* (MDS) within the Resident Assessment Instrument.[1] OSCAR is annual and includes provider reported facility and staff characteristics, and health survey deficiencies. MDS, specific to each resident, includes functional limitations, medical problems, and emotional states. Both data sets are available at the facility-level, and can be compiled to county, state, and national aggregations.

The supply of Residential Care/Assisted Living (RC/AL) doubled between 1990 and 2002—currently housing more than a million persons,[2] yet few facility-level data are available for the RC/AL industry.[3] Information available (electronically and to the public) in all states includes the name, address, and telephone number of licensed facilities. About one-third of the states include citation information.[4] Usually, facilities must be contacted directly to obtain information on services, cost, and facility, staffing and resident characteristics.

A compelling public health incentive for a comprehensive RC/AL data system is an increasing prevalence of physical and cognitive frailty among residents,[5-6] coupled with findings that RC/AL facilities have lower staff to resident ratios and lower training standards than nursing homes.[7] Such findings raise concerns about quality of care and safety of residents.[8-9]

Recognizing the possible value of facility-level data systems that report resident and facility characteristics, and health outcomes, we looked at an existing State administrative data "system", and its potential for adaptation into a comprehensive electronic system. California, with a RC/AL industry capacity to serve over 155,000 persons, is the focus of this study. We examined the data elements required by the State and assessed the components of quality of care represented.

BACKGROUND

California regulations use "Residential Care Facilities for the Elderly" (RCFEs) as the label for licensed housing serving the aged. There is no separate AL classification. Services available include room and board with provisions for assistance with activities of daily living. Assistance with transportation, housekeeping, laundry, obtaining medical and social services, and the supervision of medications is offered. Other medical needs, such as hospice or home health care are permitted by third party vendors. RCFEs range from fewer than 6 beds to over 100 beds, and vary in services offered. Some accept only ambulatory persons. Others accept and retain non-ambulatory residents, including those with dementia and hospice needs.[10]

There are 14 district offices within the Community Care Licensing Division (CCLD) of California's Department of Social Services (CDSS). CCLD is responsible for RCFE licensing and monitoring. Monitoring occurs by licensing surveys, in response to complaints, and for administrative reasons (e.g., to evaluate a plan of correction related to a citation).

RCFEs maintain substantial information on-site. This includes resident medical evaluations, plans of care, discharge information, and personnel records. Personnel reports and unusual incident and death reports are submitted to the responsible offices. Data pertaining to specific residents are not available as public documents either at facilities or CCLD offices.

METHODS

The study has two aims. The first is to assess the completeness and availability of administrative data compiled on California RCFEs, with comparisons among CCLD district offices and by facility size groups. The second aim is conceptual. It considers the quality and performance oversight indicators that could be derived from public information or other information produced and/or maintained by RCFE providers.

Sample

A stratified probability sample of licensed RCFEs operating in Northern and Central California as of June 2006 was used for the appraisal of CCLD district office survey experiences and public file systems. The selected offices are responsible for 49 of California's 58 counties and approximately 50% of all RCFEs in the State. Approximately equal numbers of facilities were selected in each of the six study district offices. Within the offices, facilities were stratified by size groups (i.e., 1- 6 beds; 7-15 beds; 16-49 beds; 50-99 beds; and $\geq$100 beds), consistent with regulatory categories. Approximately equal numbers of facilities were selected within each group. The sample design provides probability estimates within size groups at the district office level. The sample has not been weighted to provide statewide probability estimates.

Measures and Data Collection

Four sources of RCFE information were used:

- The State maintained On-Line Facility Search. This contains the facility name, address, contact information, licensure status, capacity and responsible office. This was used to stratify and select sample facilities.

- Public RCFE files. These are available in hard copy at the CCLD district offices. The files are specific to individual facilities and contain survey reports, complaint investigations, personnel reports, fire clearances, admission agreements, plans of operation, and licensee information. Each CCLD facility visit records the date, reason for the visit, and deficiency citations given. Citations are coded by State article, specific regulation number, and by seriousness.

- Confidential RCFE files. Reports and information containing the names of residents (e.g., incident and death reports) are considered confidential, available only to CCLD officers.

- Facility records (e.g., resident, administrative, and personnel records) are maintained on-site in RCFEs and must be available to CCLD upon request, not available to the public.

The public information was obtained during district office site visits. The documents reviewed and coded covered the period June 2006 retroactively to January 2000 or to the earliest records if the sample facility had been in operation for fewer than five years. The forms and data elements used for recording confidential resident and facility information (e.g., medical evaluations, resident appraisals, incident and death reports) were obtained from CCLD. These were used to assess potentially available data. We had no access to confidential data.

Analysis

Descriptive statistics are used to present the availability of information about facility, staff, and resident characteristics; and State survey visit types and visit outcomes (e.g., deficiencies and complaints). Generalized Estimating Equations (SAS, Version 9.1, Proc Genmod) were used to test for differences between facility size groups and district offices.

RESULTS

This section is organized to first assess availability and completeness of public data files. Subsequent sections describe the measures available for each of the several domains of a quality of care framework.

RCFE Public File Availability in District Offices

Public information about RCFEs is accessible when requested in advance from district offices. Consumers may call and speak with State surveyors or request to view the public file in person. A State employee previews the file, removing confidential information before these are made available. These files are organized in a consistent manner across offices, but are typically large and time-consuming to review.

Another problem is that files are not always available. Of the sample of 340 facilities given to district offices (with four to six weeks advanced notice of our visit), 90.8% were available at the time of the scheduled visit. Eight of the missing files were in a satellite office. Two were reported to be "problem" facilities with no files available. The remaining 15 files could not be located.

Quality of Care Dimensions

Figure 1 shows an array of RCFE "structure/process/outcome" dimensions thought to influence quality of care. This framework is adapted from Avedis Donabedian.[11] This figure also shows which data elements are currently available to the public electronically and/or in hard copy format, and those only in confidential State or on-site facility records.

Structural Measures

The structural measures in the quality of care framework are derived from basic contact information and information describing the physical plant, staffing and resident case mix characteristics. Included among these items are both direct and indirect measures. The latter is available by inference from citations.

Figure 1
Conceptual Framework and Measures

STRUCTURAL MEASURES	*PROCESS MEASURES*	*OUTCOMES MEASURES*
Facility Characteristics Location[1, 2] Licensure[1, 2] Size[1, 2] Occupancy Rates[2,5] % Private Pay Residents[5] Licensee/Ownership Type[1,2] Physical Plant[2,3,5]	Types of Services[2, 5]	Deficiencies, Complaints[3-5]
Staff Characteristics Staffing Training & Credentials[3,5] Availability of a Nurse[5] Staffing Levels[3,5]	Staff Turnover[5]	Resident Health Status/Quality Indicators[3-5]
Resident Characteristics Dependency Levels[5] Sociodemographic Factors[5]	Safety[3-5]	Discharge/Medical Events[4,5]
	Care of Residents/Resident Rights[3-5]	Quality of Life Indicators[4,5]
	Utilization of Community Resources[5]	Resident/Family Satisfaction[4,5]

Source: An adaptation of Donabedian[11] developed by Flores & Newcomer[12]

[1] Public File / Electronically Available
[2] Public File / Not Electronically Available
[3] Public File Citation Information / Hard Copy to Public and Electronically Available to State
[4] Confidential State File / Not Electronically Available
[5] Confidential Facility Records / Not Electronically Available

Facility Characteristics. Facility location, licensure status, size, and licensee name are available on the CCLD on-line system. The owner and type of ownership was available in the public file. Occupancy rates (required to be recorded by CCLD during any survey visit), were available on 40% of the 2464 survey visit reports reviewed. (These reports were inclusive of all periodic, complaint, and administrative visits among the 315 sample facilities during the five year observation period). Information on resident fees, required by regulation to be available in on-site facility records in admission agreements, is not in public files.

Physical plant features, other than a sketch or photograph of the facility, are not explicitly described in the public records. There are indirect physical features indicators. For example, a fire clearance is recorded. In addition, complaints and deficiencies regarding the physical plant (e.g., fire safety, maintenance and operation, and storage space) are in the public file. As seen in Table 1, physical plant citations accounted for 666 citations or 17.3% of all citations (n=3847) issued for any cause during the observation period. Variability in the number of physical plant citations was seen among district offices. Offices ranged from 4.8-10.1% of physical plant citations being related to fire safety and 16.9-27.5% being related to storage space. Facility size was not significantly associated with the percentage of physical plant citations, but there appears to be a tendency for smaller facilities to have proportionally more fire safety citations than larger facilities.

Table 1
Structure: Physical Plant Citations

District Office	Fire Safety	Maintenance & Operation	Storage Space / Safety	Totals
Rohnert Park	11 (7.6%)	104 (72.2%)	29 (20.1%)	**144**
Sacramento/Stockton	10 (9.2%)	77 (70.6%)	22 (20.2%)	**109**
Chico	3 (5.9%)	34 (66.7%)	14 (27.5%)	**51**
San Bruno	10 (5.9%)	130 (76.9%)	28 (16.6%)	**168**
Fresno	5 (4.8%)*	78 (74.3%)	22 (21.0%) *	**105**
San Jose	9 (10.1%)	65 (73.0%)	15 (16.9%)	**89**
Totals	**48 (7.2%)**	**488 (73.2%)**	**130 (19.5%)**	**666**
Facility Size				
1-6 beds	12 (11.2%)	73 (68.2%)	21 (19.6%)	**106**
7-15 beds	16 (8.6%)	135 (73.0%)	34 (18.4%)	**185**
16-49 beds	11 (7.0%)	116 (73.4%)	31 (19.6%)	**158**
50-99 beds	3 (3.4%)	63 (71.6%)	22 (25.0%)	**88**
$\geq$ 100 beds	6 (4.7%)	101 (78.3%)	22 (17.1%)	**129**
Totals	**48 (7.2%)**	**488 (73.2%)**	**130 (19.5%)**	**666**

*p<.05 Comparison is with the reference office of San Jose.

Notes: Includes California Code of Regulations, Title 22, Division 6, Chapter 8: regulations 87686-87692[10]

Fire safety includes regulations related to the fire clearance, exiting requirements and preventative measures.

Maintenance and Operation includes regulations related to the maintenance of the physical plant, such as cleanliness, environmental comfort and safety and repairs and maintenance.

Storage Space includes regulations for the safe storage of medications and toxins.

Staff Characteristics. Measures of staffing characteristics, here considered as structural (e.g., staffing levels, training and credentials), were limited in the public files. Contributing to this was that the required Personnel Reports were absent, incomplete, or outdated. The report should include the name of each employee, date of hire, job title, and hours on-duty. CCLD requests an updated report with the written annual license renewal. All facilities in the sample with a located public file had a Personnel Report, but only 36.5% of these were complete. Further, 80% of the "completed" reports (n=92) were more than 12 months old. District offices did not vary significantly in percent of sample facilities with a complete Personnel Reports. Smaller facilities (i.e., 1-6 beds) were less likely than the others to have complete reports (i.e., 25% of 1-6 beds had completed reports, as compared to 32-50% across other size groups).

Additional personnel information is required to be maintained on-site by the facility. It is available to CCLD upon request. These data include employee health screening; records of hours worked; verification of age, education, experience and training (first aid, initial, and on-going); and criminal record clearance.

Resident-Related Characteristics. On-site facility records contain such resident information as monthly charges, source of payment, sociodemographic characteristics, dependency levels, and medical information. This information is reviewed by surveyors when visiting RCFEs.[10] This information is not aggregated at the facility-level nor reported in the public file.

Process Measures

The processes of care conducted in RCFEs considered in our quality of care framework include items specific to hands-on care, and indirect measures, such as listings of available services and staff turnover rates.

Types of Services. A list of available services (basic and optional) is required by regulations to be in the facility admission agreement. Current agreements must be available on-site. Prototypic agreements were available in 88% of the public files reviewed. These varied in length, detail and currency. The majority of admission agreements (90.7%) in the public files dated from the time of initial licensing, rather than being current. Availability and currency of admission agreements did not vary across district offices or by facility size.

Staff Turnover. Staff turnover is potentially informative as an indicator of staff-resident familiarity, and staff morale. Reliable turnover statistics cannot be compiled from the public files due to the absence of current, complete information. Such statistics can be compiled at the facility-level as regulations require personnel records be maintained for three years.

Safety/Care of Residents/Residents Rights. These data are reported only in the negative, meaning information is available in the public file if the facility has received citations related to resident care and safety. As seen in Table 2, during the study time frame, these types of citations were relatively prevalent (2342 or 60.9% of all citations issued) among the sample facilities. The most frequent citations (69.3%) were related to direct resident care. Common issues were medical care (e.g., problems with medication management, lack of appropriate medical care), personal assistance and care (e.g., care needs not met), and violations of personal rights (e.g., restraint use, lack of information, such as how to make a complaint). Staffing citations (including training and levels) were also prevalent, accounting for 18.4% of all care related citations. The third grouping of citations under this heading is related to the facility's administrative practices (e.g., inaccurate or outdated recordkeeping or reporting). Citations for such problems accounted for 12.3% of all care related citations.

Variability in the number of safety and rights citations was seen across district offices. The differences were statistically significant among three district offices. Similar proportions of citations were evident among all size groups. Information regarding the affirmative measures of care and safety may be in facility records relating to resident care, such as the plan of care and changes in health status.

Utilization of Community Resources. Information about facilities' use of community resources was not generally present in the public file. One exception was the presence of a hospice waiver (a special condition that allows the facility to accept and retain hospice residents). Although the number of hospice residents served was not identified in these data, 52.1% of facilities in the sample had this waiver. Facilities are required to notify CCLD upon the admission of a resident to hospice care, making it possible for a tabulation of actual number of residents receiving hospice care to be compiled, using confidential district office data. Information about the use of other community resources (e.g., residents attending adult day programs, receiving home care services) is present in facility resident records.

Table 2
Process: Continuing Requirements for Resident Care and Safety

District Office	Facility	Staffing	Residents	Totals
Rohnert Park	61 (10.5%)*	112 (19.4%)*	407 (70.1%)*	**580**
Sacramento/Stockton	76 (15.6%)	91 (18.7%)	319 (65.7%)	**486**
Chico	38 (12.4%)	59 (19.1%)	211 (68.5%)	**308**
San Bruno	66 (15.8%)	64 (15.3%)	288 (68.9%)	**418**
Fresno	24 (11.0%)	50 (22.9%)*	144 (66.1%)*	**218**
San Jose	26 (7.8%)	58 (16.7%)	248 (75.5%)	**332**
Totals	**291 (12.3%)**	**434 (18.4%)**	**1617 (69.3%)**	**2342**
Facility Size				
1-6 beds	37 (13.3%)	68 (24.2%)	175 (62.5%)	**280**
7-15 beds	62 (12.9%)	84 (17.4%)	336 (69.7%)	**482**
16-49 beds	59 (10.2%)	113 (19.7%)	404 (70.1%)	**576**
50-99 beds	66 (13.3%)	82 (16.6%)	345 (70.1%)	**493**
$\geq$ 100 beds	67 (13.1%)	87 (17.1%)	357 (69.8%)	**511**
Totals	**291 (12.3%)**	**434 (18.4%)**	**1617 (69.3%)**	**2342**

*p<.05 Comparison is with the reference office of San Jose.

Notes: Includes California Code of Regulations, Title 22, Division 6, Chapter 8: regulations 87560-87593[10]

Facility includes regulations related to record keeping, reporting requirements, and admission agreements.

Staffing includes regulations related to staffing requirements, training and levels.

Residents include regulations related to care and supervision, provisions for medical care, food and activities.

Outcome Measures

Resident outcomes that can be derived from the existing information system are of three broad types. One set of measures are based on inspections (i.e., deficiencies, complaints). The second type is derived from resident-level information maintained in facility records. Included here are changes of resident health status and quality indicators, discharge and medical events, and changes in resident cognition and behavior. A third type of outcome would be resident and family satisfaction surveys. Currently, such surveys are not routine among RCFEs in California.

Deficiencies/Complaints. Deficiencies have been used elsewhere in this analysis as indirect indicators in the structure and processes dimensions. In this section, selected deficiencies are used as direct measures of outcomes. Among these are citations related to skin care, dehydration, poor nutrition, and injuries. All such deficiencies are in the public file, as well as in the electronic system limited to CCLD officers. A correctable limitation within the deficiency coding is in specificity. In the majority of citations (i.e., >60%), surveyors code only to a five digit regulation number. They do not use the lettered and numbered subsets within each regulation that further describe the specifics of the citation (e.g., medication issues as a subset of requirements).

As seen in Table 3, citations regarding health care conditions are available as indirect measures of quality of care. In these citations, either a facility is seen as taking on a level of care for which they may have inadequate staffing or other capability (e.g., dementia care requirements not met) or a specific outcome has occurred (e.g., pressure ulcer). Such citations accounted for 466 or 12.1% of total citations issued to the sample over five study years. More than half of these were

related to dementia care. The balance of the health care condition citations were related to prohibited and restricted conditions (e.g., pressure ulcers, diabetic management)**.** District offices and facility size groups varied somewhat on their internal distribution of dementia versus other prohibited condition citation, but without statistically significant differences. More interesting was the absolute prevalence of citations within the health care section. One office had two to three times more citations than other offices. Small facilities (i.e., 1-6 beds) tended to have patterns that differed from other size groups. More of their prohibited/restricted condition citations were related to dementia care, yet this group had the fewest total citations.

Table 3
Outcome: Health Care Conditions

District Office	Prohibited & Restricted Conditions	Dementia Care	Totals
Rohnert Park	59 (34.1%)	114 (65.9%)	**173**
Sacramento/Stockton	35 (55.6%)	28 (44.4%)	**63**
Chico	41 (45.1%)	50 (54.9%)	**91**
San Bruno	31 (50.0%)	31 (50.0%)	**62**
Fresno	10 (40.0%)	15 (60.0%)	**25**
San Jose	24 (46.2)	28 (53.8%)	**52**
Totals	**200 (42.9%)**	**266 (57.1%)**	**466**
Facility Size			
1-6 beds	15 (25%)	45 (75.0%)	**60**
7-15 beds	31 (47.7)	34 (52.3%)	**65**
16-49 beds	56 (44.4%)	70 (55.6%)	**126**
50-99 beds	48 (44%)	61 (56.0%)	**109**
$\geq$ 100 beds	50 (47.2%)	56 (52.8%)	**106**
Totals	**200 (42.9%)**	**266 (57.1%)**	**466**

Notes: Includes California Code of Regulations, Title 22, Division 6, Chapter 8: regulations 87700-87725[10]

Prohibited and restricted condition regulations are related to level of care (e.g., conditions such as diabetes, pressure ulcers, and certain infections) for which the facility is not eligible or is inadequately staffed to provide.

Dementia care refers to regulatory requirements for care and safety of persons with a primary diagnosis of dementia. A citation can be related to the facility (e.g., does not meet the staffing or other requirements for this level of care) or to a specific resident (e.g., when care needs have not been met).

Other Outcome Components. There are several outcome components of quality (i.e., resident health status/quality indicators, discharge/medical event data, quality of life indicators, satisfaction) presently inaccessible. Some of this information, while not available in the public file, is available in facility reports made to CCLD. Resident specific information (e.g., medical assessments, appraisals and plans of care) are located on-site at facilities. Aggregations of this information are not currently compiled to provide a profile of resident characteristics or changes in resident population mix or outcomes over time.

DISCUSSION

This study assessed the completeness and availability of administrative data compiled on California RCFEs and considered quality and performance oversight indicators that could be

derived. It was shown that State regulations require that CCLD maintains and/or has access to considerable amounts of information. Considered collectively, these data document key dimensions in a comprehensive quality of care framework. However, in spite of the substantial resources used by providers and the State collecting these data, the policy oversight, quality improvement, and consumer useful information is limited. Several factors contribute to this, but all are amenable to solution. One is that little information is collected and/or stored in electronic form. The absence of an electronic system in turn increases recording burden and the likelihood of surveyor and provider variation in completeness and coding consistency. These factors likely contribute to data being incomplete or not updated regularly. Maintaining information in hard copy format results in a significant burden and discourages use. For example, under the existing system, State employees must preview and be present during viewings of public files. For the public, the State files are large, cumbersome to review, and may be difficult for the average consumer to understand. Going to offices to view the files likely reduces use of these records.

A second factor diminishing the comprehensiveness of the data system is that the majority of it is available only at the facility. Among the consequences of this are that both the public and policy makers have ready access to only basic information: facility name, address, contact person, size, and citations and deficiencies. The current system does not aggregate facility-level data to take advantage of the available information to monitor changes in facility services, pricing, and staffing characteristics; nor to monitor changes in resident characteristics and outcomes. For consumers, facility-specific information can be obtained if they visit a facility, but there is no aggregated or community wide comparative information to help contextualize this information.

The emphasis on public data, as opposed to using all of the facility-level data, has important consequences for oversight and quality improvement. Public data include citations, which are indicative of problems. The available public information does not explicitly report positive facility attributes or how these change over time or as resident characteristics vary.

In addition to these broader considerations, the results of this study indicate some differences in the practices among district offices with respect to focus of attention and thoroughness of recording. Improved quality assurance efforts on the part of the State are indicated. Further, the present system does not allow for distinct information regarding resident outcomes. For example, a health care citation may indicate that a facility is not meeting a requirement or it may mean that a resident experienced a bad outcome (e.g., a fall with injury).

Study Strengths and Limitations

The study considered all regulation required RCFE information and looked at the completeness of the data available in public files. Data only in facility or in State confidential files were evaluated for content only. A sample of facilities was used to investigate the completeness of public files. The sample was designed to represent facility size groups, within a district office. The data were not weighted to represent facilities by size for the whole State, or to provide probability estimates relative to the prevalence of particular attributes or experiences within district offices. The inclusion of multiple district offices, and the facility size stratification in the analysis found some variation in the completeness of files and in the types of citations given. Whether the differences were the result of practice variation in enforcing record completeness or in evaluating provider performance were not investigated.

Implications

This paper has shown that information regarding important components of quality of care exist in various places and formats within CCLD and RCFEs. We believe that an electronic record system is an essential step in integrating the existing data. At present, complaint and citation information is the only means to represent quality outcomes, yet such measures reflects only negative components without consideration of other important factors (e.g., case-mix) that may affect outcomes. Substantial efficiencies may be realized with the implementation of electronic systems that capture facility and resident specific information and aggregate these into facility characteristics. Such systems could better support consumer information and policy oversight needs, and ultimately reduce the State administrative burden associated with the current hard copy public and facility-based information systems.

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